

REMARKS

The Examiner rejected claim 1 under 35 U.S.C. §103(a) as being unpatentable over Smith (UK Patent No. 2,145,257). The Examiner states it would have been obvious to one having ordinary skill in the art at the time of the invention to allow the input device of Smith to have the loop arrangement to be used according to the system which is taught by Smith, thereby providing an additional alternative method and apparatus for controlling the displayed information, which allows the user with a switch arrangement that is more convenient and more comfortable to use.

The present invention relates to a method of selecting an item displayed on a display. To make a selection, a user is required to make a selection action – for example touching a touch pad or clicking a button on a mouse or joystick – at a position appropriate for the selection of the particular item. For example, a cursor or joystick at a particular position and clicking a button.

In conventional systems, a selection may be made by using a mouse to control the movement of a cursor to overlie an item displayed on a display to be selected, and then by clicking a button on the mouse to make the selection. In this way, the user has free movement of the cursor to any position on the screen.

This is contrasted to the present invention where the user is limited to a particular range or path along which a ‘cursor’ or locator can be moved to make the selection. In the simplest example of the present invention, the range along which the ‘cursor’ can be moved is a circular path, with the ‘cursor’ being moved along the path, or being positioned at any position on the path, but not being able to move to make a selection at any point not on the path. (It will be appreciated that while reference is made to the positioning of a cursor, there may be no cursor

used or displayed, and the reference may be to the point of contact of a user's finger on a touch sensitive pad, or the positioning of a joystick).

Claim 1 requires "defining within a loop-shaped range a number of sections equal to the number of items, the arrangement of said sections corresponding to the arrangement of said regions of the display area, each section corresponding to a respective region". According to the present invention, the path or range along which selections can be made is in the form of a closed loop. This closed loop is divided into a number of sections, which correspond to the number of items displayed on the display, which can be selected. Each of the sections of the range corresponds to the arrangement of the items on the display. In this way, by moving or positioning the 'cursor' at a point along the closed loop path or range and carrying out the selection action, the item displayed on the screen at a position corresponding to the point along the range where the selection action was made will be selected.

An example of how this works in practice can best be understood from a consideration of Figure 10(a) of the application. In this case, the selection path or range is a circular path (reference 400). The items to be displayed in this case are three selectable items (references 411, 412, 413). These are arranged on the display around a central point. The selection path is divided into three sections, which correspond to the arrangement of the three selectable items. Therefore, the section from the 1 o'clock position to the 5 o'clock position corresponds to item 413, the section from the 5 o'clock position to the 9 o'clock position corresponds to item 412, and the section from the 9 o'clock position to the 1 o'clock position corresponds to item 411. Therefore, if the user makes a selection along the selection path in the 1 o'clock to 5 o'clock position (for example positions a cursor in this section and presses the button, touches a touch pad in this region, points a joystick in this region and presses a button, etc.), the item 413 will be

selected. Similarly, if the user makes a selection along the selection path in the 9 o'clock to 1 o'clock section, item 411 will be selected.

The uniqueness of the present invention lies in the provision of a continuous closed loop selection path or range that can be divided up dependent upon the number and arrangement of the items to be selected. For example, if there were only two items that could be selected, the range would be divided into two sections. If there were four items that could be selected, the range would be divided into four sections. If there are five selectable items, the range would be divided into five sections. This again can be seen from Figure 10(a), in which each of the three items selected are sub-groups of items – for example item 411 actually being a sub-group of five items. In this case, if the user was to select item 411 (by making a selection along the selection range in the 9 o'clock to 1 o'clock section), the display would effectively ‘zoom in’ on the item 411 so that the display area would show the five items (references 401 to 405). The circular range 400 would then be divided into five new sections. Generally, item 401 would be selected by making a selection in the range from 7 o'clock to 10 o'clock, item 402 in the range 10 o'clock to 12 o'clock, item 403 in the range 12 o'clock to 2 o'clock, item 404 in the range 2 o'clock to 5 o'clock and item 405 in the range 5 o'clock to 10 o'clock.

This ability to provide a closed loop selection range or path that can be divided up (within reason) into any number of sections corresponding to the number of selectable items and the relative arrangement of the selectable items as displayed on the display is not disclosed in Smith, and is not considered to be obvious in the light of Smith.

In contrast to the present invention, Smith discloses a selection system in which there are provided a fixed number of switches provided in an array. The items to be selected are divided into a number of sub-groups. The number of sub-groups corresponds to the fixed number of

switches. Each of the sub-groups are themselves divided into further sub-groups, again the number of further sub-groups corresponding to the fixed number of switches. This sub-division continues until the sub-groups contain individual selectable items. An individual item is selected by repeatedly actuating the switch corresponding to the sub-groups in which the desired item is located.

The number of switches will correspond to the number of items or sub-groups that can be selected. However, unlike the present invention, the number of switches – and therefore the number of sub-groups into which the selectable items must be divided – is fixed. This will make it difficult and/or more time consuming to select an item than with the present invention. For example, if the array of switches comprises four switches, but there are five items that can be selected, it is necessary to divide the four items into four sub-groups, i.e. with one of the groups having two items. Therefore, if one of these items is to be selected, this will require two selections – the first to select the sub-group, the second to select the item within the sub-group. This is not the case with the present invention, in which the range can be divided into any number of sections corresponding to the number of items, and therefore if there are five items the range can be divided into five. This is possible because the selection is made on a continuous closed loop path. This means that only a single step is required to make a selection of one item from five rather than the two selection steps required according to the disclosure in Smith.

At best, Smith suggests that different numbers of switches can be used and that these can be arranged in alternative patterns, the number of switches will still be fixed for a given application and the switches will be arranged in a fixed array rather than in a continuous path.

The difference between the present invention and Smith, as stated in claim 1 is “a data input means which registers a selection made by the user within a loop-shaped range.” The loop-

shaped range is sub-divided into a number of sections that equals the number of selectable items (or groups of items) displayed on a display, in which the number of items (or groups of items) displayed on the display is variable. As required by claim 1, “displaying within the display area a number of regions equal to the number of items.” It is this one-to-one relationship between the number of sections into which the looped-shaped array is divided for any particular display of selectable items and the variable number of items (or groups of items) that can be selected that distinguishes the present invention from the disclosure in Smith.

With reference to Exhibit 1, a way of trying to explain the technical difference of the present invention over Smith may be made by referring to the number of active elements in the data input means. Exhibit 1 is not submitted for patentability reasons and is not new matter as the content of Exhibit 1 is implicitly within the text of the present application and therefore Exhibit 1 is not limiting to the present invention, but is merely submitted to clarify the present invention. The simplest form of a loop-shaped range for the data input means is a circle. Within this circle there will be a number of individual elements (switches). For simplicity, let us assume that there are three hundred and sixty elements equally spaced in the circular arrangement. Where there are two items that can be selected, the three hundred and sixty selection elements will be divided into two groups, each having one hundred and eighty elements. It will be appreciated that in this case all three hundred and sixty elements can be used in the selection of one of the two items. This means that the selection regions are as large as possible for the selection of the two items.

If there are three items for selection, the same three hundred and sixty elements in the circular range will be divided into three groups, each having one hundred and twenty elements. Again, all of the selection elements are active, and so can be used for selection of the items. This

means that there is the maximum possible number of selection elements, and therefore the maximum available size, for selection of the items.

An example of the division of the three hundred and sixty elements where there are four or twelve items to be selected is also shown. It will be appreciated that in these examples, there will be ninety or thirty elements respectively that are used for making the selection, in each case ensuring that all selection positions are available for selection of the items, and therefore the maximum size is utilized for selection of the items.

It will be appreciated that the present invention can therefore be used where there is a changing or variable number of items (or groups of items) that can be selected and in all cases all of the looped-shaped range is made available, or active, for selection of the items (or groups of items).

In contrast, Smith does not associate the number of items (or groups of items) that can be selected with the number of switches so that the switches are all active, except in the limited circumstance where the number of items (or number of groups of items) that can be selected corresponds to the fixed number of switches. For example, in the embodiments described in the application, where there are four switches, and there are four items, or groups of items, which can be selected, there will be a one-to-one relationship between the groups to be selected and the number of switches. In the example, the items to be selected are arranged in the four quadrants of a square display, as shown in Figure 6, in which each of the quadrants corresponds to one of the switches. However, if there are only three items that can be selected, these can only be displayed in three of the four quadrants. In this case, only three of the four switches will be active, since only the three switches corresponding to the three quadrants including an item to be selected will be active. Therefore, where the number of items that can be selected is less than the

number of switches, then only some of the switches (corresponding to the number of selectable items) are used. If there were three hundred and sixty switches, but only two selectable items, based on the teaching in Smith only two switches would be used, rather than all three hundred and sixty switches in accordance with the present invention. Therefore, selection of an item according to Smith would be much harder than with the present invention.

As described above, with the present invention, if three items are available for selection, the entire loop-shaped range will be divided into three sections, enabling use of all switches for selection of the three items. The disclosure in Smith could be considered to be equivalent to dividing the entire range into four, but then de-activating one of the sections of the range. It will be appreciated that this will reduce the effectiveness, and in particular the area, over which selections can be made. This is clearly helpful as the number of items increases, or the size of the range decreases. It is certainly not the case that Smith could be used for “any” number and arrangement of microswitches. The number of microswitches that can be used according to Smith are limited given that the teaching in this document is that the switches should be operated by a user’s tongue. Whilst it may be possible to include more than four switches, it would not be possible to include significantly more than four switches. However, even if more switches were used in the arrangement taught by Smith, there is still no suggestion of sub-dividing the switches into a variable number of items that can be selected, much less dividing these so that all of the switches are active. As such, there is no reason why a person skilled in the art would consider the use of a loop-shaped array, which the Examiner acknowledges is not explicitly disclosed in the prior art.

It is noted that in the Official Action, the Examiner alleges that “even if the switch arrangement is fixed, it is still possible to have a variable number of items, wherein such an case,

multiple switches are used to make the selection (Smith page 3, lines 48 to 53)". It is submitted that the arrangement discussed in this section of the prior art does not show the division of a range of the data input means into a number of sections corresponding to the number of items that can be selected. Instead, this section requires the simultaneous activation of two switches to make a different selection. This shows that the prior art, far from teaching that the number of sections of a data input means should correspond to the number of items, or groups of items, to be selected, teaches that where the number of items to be selected is greater than the number of switches, multiple inputs should be used to make different selections. It is therefore considered that this passage teaches away from the present invention.

Moreover, the structure that would result from the Examiner's proposed combination does not meet the terms of claim 1. Claim 1 requires, "defining within a loop-shaped range a number of sections equal to the number of items, the arrangement of said sections corresponding to the arrangement of said regions of the display area, each section corresponding to a respective region". In contrast, Smith discloses a selection system in which there are provided a fixed number of switches provided in an array. The items to be selected are divided into a number of sub-groups. The number of sub-groups corresponds to the fixed number of switches. Each of the sub-groups are themselves divided into further sub-groups, again the number of further sub-groups corresponding to the fixed number of switches. Therefore, claim 1 is patentably distinct from Smith.

Analogous arguments can be made for claims 2-28 and therefore claims 2-28 are patentably distinct from Smith.

The Examiner rejected claims 7 and 22 under 35 U.S.C. §103(a) as being unpatentable over Smith as applied to claims 6 and 21 and further in view of Welch et al. (U.S. Pat. No.

4,121,204). However claims 7 and 22 depend from allowable base claims 1 or 2, or 18 or 19 respectively, therefore, claims 7 and 22 are considered patentably distinct over Smith in view of Welch for at least the reasons presented above.

The Examiner rejected claims 26 and 27 under 35 U.S.C. §103(a) as being unpatentable over Smith as applied to claims 18 and 19 and further in view of Yamagishi et al. (U.S. Pat. No. 6,178,338). However claims 26 and 27 depend from allowable base claims 18 or 19 respectively, therefore, claims 26 and 17 are considered patentably distinct over Smith in view of Yamagishi for at least the reasons presented above.

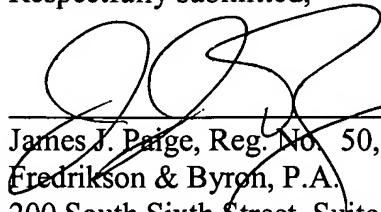
In light of the above, applicant respectfully submits that claims 1-28 are in condition for allowance. As these are the only claims pending in the application, issuance of a Notice of Allowance is courteously solicited.

The application presents 4 independent claims and 28 total claims. Enclosed herewith is a Petition for a Three-Month Extension of Time under 37 C.F.R. §1.136(a)(1) and a check for \$905.00 to cover the RCE and extension fees. Please treat any communication filed at any time in this application, requiring a petition for an extension of time under 37 CFR 1.136(a) towards timely submission, as incorporating a proper petition for an extension of the appropriate length of time. If any additional fees are required to enter the present amendment, applicant hereby authorizes the office to charge our Deposit Account No. 061910.

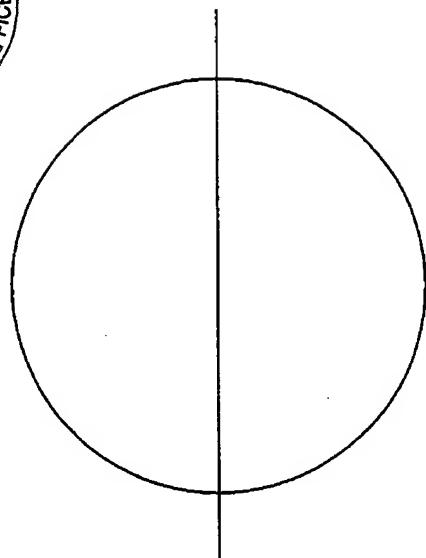
If the Examiner feels prosecution of the present application can be materially advanced by telephonic interview, the undersigned would welcome a call at the number listed below.

Respectfully submitted,

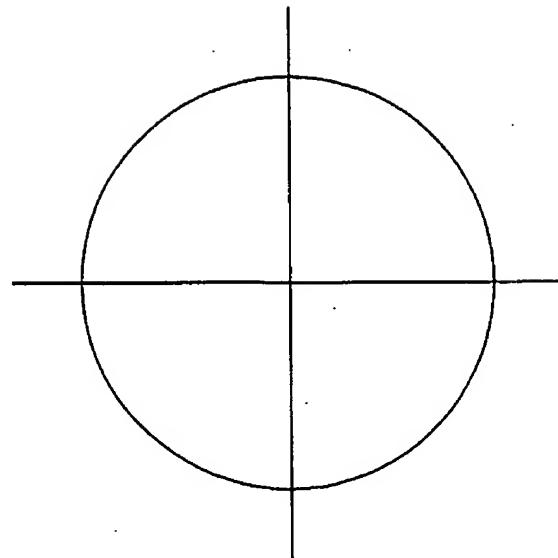
Dated: 1/18/06


James J. Paige, Reg. No. 50,886
Fredrikson & Byron, P.A.
200 South Sixth Street, Suite 4000
Minneapolis, MN 55402
(612) 492-7222
Customer No.: 22859

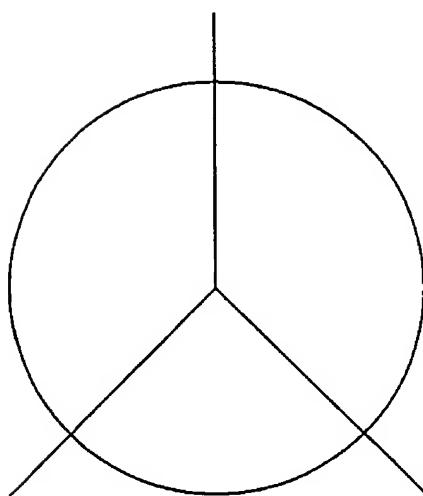
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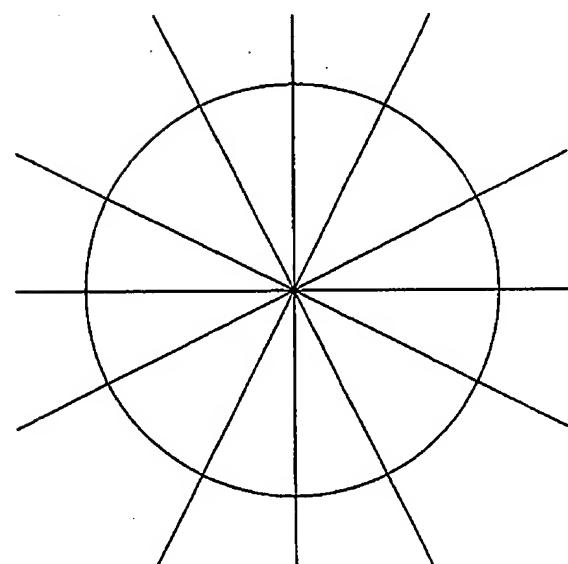
2 items



4 items



3 items



12 items